



DEPARTMENT OF THE AIR FORCE
59TH MEDICAL WING (AETC)
JOINT BASE SAN ANTONIO - LACKLAND TEXAS



2 AUGUST 2017

MEMORANDUM FOR SGVT

ATTN: CAPT ALYSSA R DICKEY

FROM: 59 MDW/SGVU

SUBJECT: Professional Presentation Approval

1. Your paper, entitled Continuous Intrathecal Morphine Infusion for Pain Management in a Patient with Burn Injury presented at/published to Military Health Services Research Symposium (MHSRS), Kissimmee FL 27-30 Aug 2017 in accordance with MDWI 41-108, has been approved and assigned local file #17303.
2. Pertinent biographic information (name of author(s) title, etc.) has been entered into our computer file. Please advise us (by phone or mail) that your presentation was given. At that time, we will need the date (month, day and year) along with the location of your presentation. It is important to update this information so that we can provide quality support for you, your department, and the Medical Center commander. This information is used to document the scholarly activities of our professional staff and students, which is an essential component of Wilford Hall Ambulatory Surgical Center (WHASC) internship and residency programs.
3. Please know that if you are a Graduate Health Sciences Education student and your department has told you they cannot fund your publication, the 59th Clinical Research Division may pay for your basic journal publishing charges (to include costs for tables and black and white photos). We cannot pay for reprints. If you are a 59 MDW staff member, we can forward your request for funds to the designated Wing POC at the Chief Scientist's Office, Ms. Alice Houy, office phone: 210-292-8029; email address: alice.houy.civ@mail.mil.
4. Congratulations, and thank you for your efforts and time. Your contributions are vital to the medical mission. We look forward to assisting you in your future publication/presentation efforts.

Linda Steel-Goodwin

LINDA STEEL-GOODWIN, Col, USAF, BSC
Director, Clinical Investigations & Research Support

PROCESSING OF PROFESSIONAL MEDICAL RESEARCH/TECHNICAL PUBLICATIONS/PRESENTATIONS

INSTRUCTIONS

USE ONLY THE MOST CURRENT 59 MDW FORM 3039 LOCATED ON AF E-PUBLISHING

1. The author must complete page two of this form:
 - a. In Section 2, add the funding source for your study [e.g., 59 MDW CRD Graduate Health Sciences Education (GHSE) (SG5 O&M); SG5 R&D; Tri-Service Nursing Research Program (TSNRP); Defense Medical Research & Development Program (DMRDP); NIH; Congressionally Directed Medical Research Program (CDMRP) ; Grants; etc.]
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2. Print your name, rank/grade, sign and date the form in the author's signature block or use an electronic signature.
3. Attach a copy of the 59 MDW IRB or IACUC approval letter for the research related study. If this is a technical publication/presentation, state the type (e.g. case report, QA/QI study, program evaluation study, informational report/briefing, etc.) in the "Protocol Title" box.
4. Attach a copy of your abstract, paper, poster and other supporting documentation.
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8. The 59 CRD/Publications and Presentations Section will route the request form to clinical investigations, 502 ISG/JAC (Ethics Review) and Public Affairs (59 MDW/PA) for review and then forward you a final letter of approval or disapproval.
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11. The Joint Ethics Regulation (JER) DoD 5500.07-R, *Standards of Conduct*, provides standards of ethical conduct for all DoD personnel and their interactions with other non-DoD entities, organizations, societies, conferences, etc. Part of the Form 3039 review and approval process includes a legal ethics review to address any potential conflicts related to DoD personnel participating in non-DoD sponsored conferences, professional meetings, publication/presentation disclosures to domestic and foreign audiences, DoD personnel accepting non-DoD contributions, awards, honoraria, gifts, etc. The specific circumstances for your presentation will determine whether a legal review is necessary. **If you (as the author) or your supervisor check "NO" in block 17 of the Form 3039, your research or technical documents will not be forwarded to the 502 ISG/JAC legal office for an ethics review.** To assist you in making this decision about whether to request a legal review, the following examples are provided as a guideline:

For presentations before professional societies and like organizations, the 59 MDW Public Affairs Office (PAO) will provide the needed review to ensure proper disclaimers are included and the subject matter of the presentation does not create any cause for DoD concern.

If the sponsor of a conference or meeting is a DoD entity, an ethics review of your presentation is not required, since the DoD entity is responsible to obtain all approvals for the event.

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NOTE: All abstracts, papers, posters, etc., should contain the following disclaimer statement:

"The views expressed are those of the [author(s)] [presenter(s)] and do not reflect the official views or policy of the Department of Defense or its Components"

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"The experiments reported herein were conducted according to the principles set forth in the National Institute of Health Publication No. 80-23, Guide for the Care and Use of Laboratory Animals and the Animal Welfare Act of 1966, as amended."

PROCESSING OF PROFESSIONAL MEDICAL RESEARCH/TECHNICAL PUBLICATIONS/PRESENTATIONS

1. TO: CLINICAL RESEARCH	2. FROM: (Author's Name, Rank, Grade, Office Symbol)	3. GME/GHSE STUDENT:	4. PROTOCOL NUMBER:
ALYSSA R. DICKEY, Capt/O-03/SGVT		<input checked="" type="checkbox"/> YES	<input type="checkbox"/> NO
5. PROTOCOL TITLE: (NOTE: For each new release of medical research or technical information as a publication/presentation, a new 59 MDW Form 3039 must be submitted for review and approval.)			
6. TITLE OF MATERIAL TO BE PUBLISHED OR PRESENTED: Continuous Intrathecal Morphine Infusion for Pain Management in a Patient with Burn Injury			
7. FUNDING RECEIVED FOR THIS STUDY? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO FUNDING SOURCE:			
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16. AUTHORSHIP AND CO-AUTHOR(S) List in the order they will appear in the manuscript.			
LAST NAME, FIRST NAME AND M.I. a. Primary/Corresponding Author Dickey, Alyssa R.	GRADE/RANK O-03/Capt	SQUADRON/GROUP/OFFICE SYMBOL 959 CSPS/959 MDG/SGVT	INSTITUTION (If not 59 MDW)
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17. IS A 502 ISG/JAC ETHICS REVIEW REQUIRED (JER DOD 5500.07-R)? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO			
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18. AUTHOR'S PRINTED NAME, RANK, GRADE Alyssa R. Dickey, Capt/O-03		19. AUTHOR'S SIGNATURE DICKEY ALYSSA R.1395882232	20. DATE July 25, 2017
21. APPROVING AUTHORITY'S PRINTED NAME, RANK, TITLE Brian M. Fitzgerald, Lt Col, SAUSHEC Anesthesia Program Director		22. APPROVING AUTHORITY'S SIGNATURE FITZGERALD BRIAN M.1050473429	23. DATE

PROCESSING OF PROFESSIONAL MEDICAL RESEARCH/TECHNICAL PUBLICATIONS/PRESENTATIONS

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29. COMMENTS <input checked="" type="checkbox"/> APPROVED <input type="checkbox"/> DISAPPROVED
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This case report is approved.

30. PRINTED NAME, RANK/GRADE, TITLE OF REVIEWER COL LINDA STEEL-GOODWIN, DIR CLIN RESEARCH DIV

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32. DATE

July 31, 2017

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42. PRINTED NAME, RANK/GRADE, TITLE OF REVIEWER Kevin Iinuma, SSgt/E-5, 59 MDW Public Affairs
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44. DATE

August 02, 2017

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Continuous Intrathecal Morphine Infusion for Pain Management in a Patient with Burn Injury

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The opinions or assertions contained herein are the private views of the author and are not to be construed as official or as reflecting the views of the Department of the Army or the Department of Defense.

Introduction

- Patients with burn injury requiring admission to the intensive care unit are at increased risk for delirium due to exposure to opioids and other intravenous infusions needed for pain management and sedation.
- The incidence of delirium in the intensive care unit (ICU) ranges from 45-87%.¹
- Despite the attempt to limit total dosages with a multimodal approach, the amount of medication required for analgesia and sedation hinders the patient's ability to be awake and calm, participate in physical therapy and be liberated from mechanical ventilation.
- This case report details the first reported placement of an intrathecal (IT) catheter for delivery of IT morphine in an effort to limit the use of opioids and sedatives in a patient with burn injury.
- Since IT delivery is within the cerebrospinal fluid (CSF), approximately 1mg of IT morphine is equivalent to 100 mg intravenous morphine.²

Case Presentation

- A 55 year old female sustained 45% TBSA burn injury to the face, anterior torso and extremities after falling into a brush fire pit. Her burn injury was a combination of deep partial thickness and full thickness burns.
- On hospital day six, a Braun epidural kit was used to introduce a 20 gauge multi-orifice catheter 7 cm into the IT space.
- A 2 mg bolus of preservative-free morphine was administered via the catheter.
- The site was covered with a sterile chlorhexidine-impregnated dressing and the catheter was connected to an infusion pump which delivered 0.2 mg/hr of preservative-free morphine.
- Daily catheter maintenance and dressing changes were performed by the Burn Intensive Care Unit (BICU) attending physician a board certified Anesthesiologist.
- Surveillance CSF analysis and Gram stain were performed every three days.
- The IT catheter remained in use for a total of eight days and was removed following a fever of 39.5C, which was later attributed to ventilator associated pneumonia.

Results

- The retrospective review of morphine equivalents from systemically delivered medications revealed the peak morphine equivalent of 1370mg was given on hospital day 2.
- Following the addition of a ketamine infusion and enteral methadone, the morphine equivalent was 350mg on the day prior to IT catheter placement.
- After placement of the IT catheter, the morphine equivalent of systemically administered medications trended to zero as seen in Figure 1.
- Since the exact analgesic equivalency of ketamine and methadone are unknown, these medications were not included in the morphine equivalency total.
- The ketamine and propofol infusions and enteral methadone were discontinued while the IT catheter was in use as seen in Figure 2.
- The continuous infusion of IT morphine eliminated this patient's requirement for intravenous pain and sedative infusions thus removing a known risk factor for delirium.¹

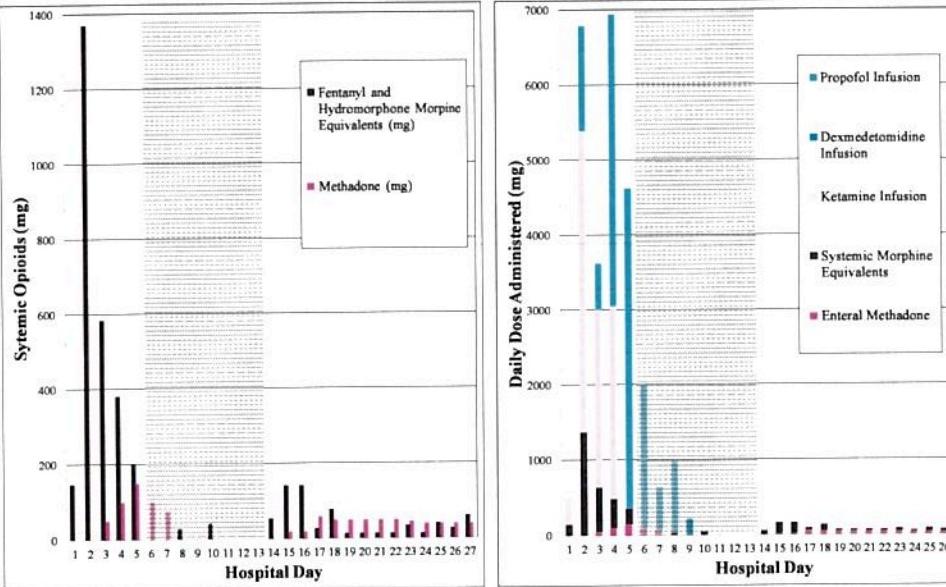


Figure 1: Total morphine equivalents of intravenous fentanyl and hydromorphone administered. Methadone is plotted separately due to the unknown analgesia equitopony. Shaded area represents time period when the IT catheter was in use. IT opioids are not represented on this graph.

Conclusions

- Administration of medication near the effective site and at the lowest possible dose may be a viable technique to prevent delirium in the acutely injured ICU patient.
- There is no prior documentation of the use of IT catheters to manage pain in patients with burn injury.
- There is no patient population to directly compare so any data on infusion dosage, complications or infectious risk must be extrapolated from patients with different disease processes but similar interventions.
- Patients with burn injury are prone to infections however de novo CNS infections remain extremely rare even though these patients may endure multiple bloodstream infections.³
- Not all patients with burn injury are good candidates for continuous IT analgesia. Patients with burns to the lower back at the insertion site and patients with small TBSA should probably be excluded as the risk of intervention may outweigh the benefits.
- The infectious risk of having a catheter in the intrathecal space is unknown for patients with burn injury. Based on data from literature on patients with extraventricular drains, management of these catheters should involve minimizing access to the catheter, using sterile techniques when access is required and limitation of catheter duration to mitigate the risk of infection.⁴
- Future directions for this research include increasing the study sample size with the overall goal of treating pain associated with early excision and grafting.

References

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